Evolution Lesson Plan

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| **Title:**  Evolving Hardware | **Grade Level:**  **9** |
| **Objectives:** The student will be able to:  1. Examine structural differences when classifying organisms  2. Construct a cladogram for the given organisms | |
| **Illinois Learning Standards:**  ILS Stage I 12A5 and ILS Stage H 12A3. | |
| **Engagement:**  Students will watch a short clip of the Simpsons cartoon which shows the theoretical evolution of life from a single cell to Homer Simpson. The clip is to help get the students in the mood about evolution. Students will then be told that they will be examining and classifying a group of organisms. The organisms consist of several pieces of hardware with slight differences. | |
| **Exploration**:  The students will be given 10 to 15 minutes to examine the hardware pieces and attempt to decide which ones are the ancestor organisms and which are the descendents. Students will note similarities and differences of each organisms when putting the organisms in order. | |
| **Explanation:**  Students will present their order of oldest organisms to youngest. The students will then have to state and defend their choices as to why they put them in the order that they did. | |
| **Elaboration:**  After students present their lists for classifying the organisms, they will be introduced to the chart technique and allowed to create a cladogram. Students will then be given the opportunity to look up an organism such as monkeys or whales and look for evidence of convergent and divergent evolution within it’s cladogram. | |
| **Evaluation(Assessment Strategies):**  Students will not be assessed on getting their organisms in the correct order for the initial classification. However their answers to the discussion questions as well as a finalized cladogram will be collected and graded. | |
| **Rationale:**  One of the important aspects of evolution is to understand that organisms modify various structures in order to better adapt and survive within their environment. By using pieces of affordable hardware such as screws and nails students can be given a simulation of evolution within an organism. They can observe characteristics such as structure, threading, and head type. It gives students the opportunity to apply classification techniques used by taxonomists when creating cladograms. | |
| **Resources:**  Campbell, N.A., & Reece, J.B. (2008). *Biology eighth edition*. San Fransico California:  Pearson Benjamin Cummings.  Illinois State Board of Education. (1997). Illinois State Learning Standards. [On-  line]. Retrieved on February 22, 2011. Available:  http://www.isbe.net/ils/Default.htm.  NOVA. (2004). *The missing link*. [On-line]. Retrieved on February 22, 2011. Available:  http://www.pbs.org/wgbh/nova/teachers/activities/2905\_link.html | |